CLAIMS

1. A water-based metal surface treatment composition for forming a lubricating film with excellent marring resistance, characterized by containing:

(a) a water-based urethane resin, in which average molecular weight of the water-based urethane is at least 3000 and the resin skeleton includes a bisphenol skeleton and a carboxyl group, the content of nitrogen participating in an isocyanate reaction during the synthesis of said resin is between 2 and 13 wt%, and the ratio of the nitrogen in urea bonds to the nitrogen participating in the isocyanate reaction, which is the proportion of nitrogen atoms pertaining to urea bonds out of the nitrogen atoms participating in the isocyanate reaction during the synthesis of said resin, is between 10/100 and 90/100;

(b) a hardener;

(c) silica; and

(d) a polyolefin wax,

wherein the combined amount of components (a) and (b), as solids with respect to the total solid weight (e), is 50 to 95 wt%, the equivalent ratio of functional groups in component (b) with respect to the equivalent of carboxyl groups contained in the skeleton of component (a) is 0.10 to 1.00, the solid weight of component (c) with respect to (e) is 3 to 40 wt%, and the solid weight of component (d) with respect to (e) is 2 to 30 wt%.

2. A water-based metal surface treatment composition as defined in Claim 1, wherein the nitrogen content of the water-based urethane resin is 5 to 10 wt%.

3. A water-based metal surface treatment composition as defined in Claim 1, wherein the hardener includes at least one type of functional group selected from among epoxy groups and isocyanate groups.

4. A water-based metal surface treatment composition as defined in Claim 1, wherein the amount of carboxyl groups in the water-based urethane resin is 10 to 50 calculated as the acid value for the solids of said resin.

5. A water-based metal surface treatment composition as defined in Claim 1, wherein the saponification value of the polyolefin wax is 30 or less, or zero, and the structure is branched.

6. A water-based metal surface treatment composition as defined in Claim 1, wherein the polyolefin wax has an average particle size of 0.1 to 7.0 μm.